SPRING 2019 **The Chemistry of Art** **CHEM 176**

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The Chemistry of Art is a class taught in collaboration between the Department of Chemistry at Rice University and the Museum of Fine Arts Houston (MFAH). As such, it provides a unique opportunity for students to understand and experience the role that chemistry and science in general plays in the creation, preservation, restoration and authentication of art objects.

This course is being taught in conjunction with the conservation staff at the Museum of Fine Arts Houston (MFAH). Some sessions will be held during class time at the museum, which is about a 10-15 minute walk from campus, or you may bike. Because of construction at the MFAH, parking may be difficult to find and you may have to pay for it. Students will be responsible for getting to the museum on their own, but we anticipate that the classes will start about ten minutes later (ca. 11 AM rather than at 10:50 AM) on those dates in order to give people enough time to get there. The rooms where you will meet at the museum will be indicated via email shortly before our visits. Most often, we will be meeting in the lobby of the Beck Building located at the southeast corner of Fannin and Binz. Our intention is to cover fundamental chemical principles in class, which will be followed by illustration of these principles with selected works of art at the museum.

The course grade will be based upon the following:

- Class attendance and participation (10%)
- Three 1-hr semester exams (20% each)
- Out of class assignments (10%)
- Final exam (20%)

Attendance during the lecture classes held at Rice is strongly recommended since there is no standard text available for the class. Attendance at the sessions held at the MFAH or that the Houston Museum of Natural Sciences (HMNS) are required as these cannot be made up. 2% of the course grade will be subtracted for each missed session that takes place at one of the museums, although you will be allowed one 'free pass' on missing a particular session. If you miss a museum you will be responsible for getting notes from your fellow students as this material will also be covered on the exams. The museum conservators will present the material covered at the museum. The museum staff who will be participating in this class include

Prof. David Bomford	Chairman of Conservation
Prof. Zahira Bomford, Ph.D.	Senior Conservator of Paintings
Jane Gillies	Senior Conservator of Sculpture
Steve Pine	Senior Conservator of Decorative Arts
Toshi Koseki	Senior Conservator of Photographs
Tina Tan	Conservator of Works on Paper
Corina Rogge, Ph.D.	Conservation Research Scientist

All of us involved in this project are very excited about the course, and we hope that you are too!!!

Schedule, *Subject to Change*

Week 1

January 8	Creating and Perceiving Objects of Art The Elements: Periodic Table Metals and Alloys: Oxidation and Reduction
January 10	Introduction to the Conservation of Art at the MFAH (MFAH, **tentative**)

Week 2

January 15	Oxidation and Reduction Continued: The Formation of Compounds
January 17	Crystalline and Amorphous Solids: Glass, Ceramics and Stone

Week 3

January 22	Sculpture (MFAH)
January 24	Gems and Minerals

Week 4

January 29	Gems and Minerals (HMNS)
January 31	**Exam 1**

Week 5

February 5	The Interaction of Light with Matter Reflection, Refraction and Diffraction Techniques for Studying Art
February 7	Spring Recess – no class

Week 6

February 12	Pigments: Inorganic Pigments
February 14	Organic Compounds, Functional Groups

Week 7

February 19	Organic Pigments
February 21	Paintings (MFAH)

Week 8

February 26	Polymer Chemistry
February 28	Textiles and Fabrics, Dying

Week 9

March 5	Textiles and Fabrics, Dying (cont'd), Wood
March 7	Wood

March 9 – March 17 Spring Break – No class

Week 10

March 19	Wood (MFAH)
March 21	**Exam 2**

Week 11

March 26	Paper and Inks
March 28	Case Studies (MFAH)

Week 12

April 2	Works on Paper: Prints and Drawings (MFAH)
April 4	Photography

Week 13

April 9	Photography
April 11	Photography (MFAH)

Week 14

April 16	Case Studies
April 18	**Exam 3**

Any student with a disability requiring accommodations in this course is encouraged to contact the instructors after class or during office hours on or before January 18, 2019. Additionally, students will need to contact Disability Support Services in the Ley Student Center.